

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Tuesday-March 01, 2005: PR-070, Blue Quench: File# = 1109729697

Permit ID: 8b-ps1 Timestamp: 21:14:56 +1394471 Beam Permit Fail Timestamp: 21:14:56 +1315845

QPAControl / Timing Resolver: No faults indicated, blue-quench detector first to trip.

Quench Detector(s) Trip: 8b-qd1, B7QFQ2_VT, Int. 1, Tq -24, no auxiliary trips.

DX Heaters: None fired

5 Minute: Quench Delay File: 8b-qd1, B7QFQ2_VT

Beam Loss Monitors (Rads/Hr): High losses seen on both sides on the Star and Phenix Experiments.

Highest Losses around the Sector 7 Triplet Region are: b7-lm3.1 = 10367.77, y7-lm2.1 = 25438.23,

b7-lm2.1 = 29111.66, g7-lm1 = 7266.98 and b7-lm0 = 4631.39

Main Magnet Power Status: At Store Energy, BDMC = 4308.36 amps, BQMC = 4014.07 amps

Blue Main Dipole indicates a Current Monitor Alert.

Technical Notes / Sequence of Events: Postmortems show bo7-qd1, bo7-ql2 and bo7-qd3 reacting to the laws of a magnet quench. (Voltage / Current Curve all before T=zero). Analysis shows that there was no indication of a power supply at fault prior to this quench event. The blue quench link tripped due to quench detector 8b-qd1 whereas a real magnet quench occurred at B7QFQ2_VT. The beam permit tripped 0.079 seconds before the quench link. Beam Losses were high at the Sector 7 Triplet Region, b7-lm3.1 and b7-lm2.1. There was one real magnet quench at b7q2. There are now 26 beam induced quenches for this Fy05 run. *G Heppner*

Physics / MCR Logs: 21:15:00 RHIC beam was dumped again due to a loss monitor permit pull and the Blue ring quenched. CCR has observed temperature rise in sectors 6 & 7. We will revert the settings in the store stone at PHENIX, recover the QLI and attempt another ramp. 21:22, we had problems steering in Phenix because Lisa was complaining that it was unable to optimize Phenix. At the same time 7c-ps2 was down and the Yellow beam decay was around 120. So I stopped Lisa, reset 7c-ps2, pulled the collimators home, stopped gap cleaning, optimized all IRs but Phenix and reduced Yellow H tune to bring the beam decay down to 10. Then I ran the sequence from the step Collimators to Stby, and then a BLM permit was pulled, and Blue quenched. 21:28, For what it's worth, we lost the beam exactly when the sequencer hit the gap cleaning step. -MES; Sanjee; CFW 21:45:00 CCR has given permission to recover the Blue QLI.

QLI Recovery TAPE Start: 21:43:27 Link Recovered Time: 21:51:00 Estimated Down Time: 36 minutes

Quench Analysis: Beam Induced Quench #026

(Counter = Beam Induced)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Scheduled Maintenance 08:00 to 16:00

Wednesday-March 02, 2005: PR-071, Blue and Yellow Quench Files:

File# = 1109769669 Permit ID: Yellow: 4b-time.B Timestamp: 08:21:08 +1823350

Cause: I brought down the yellow link for maintenance by putting yi3-qd2-ps into the OFF state. -Don Bruno

File# = 1109769688 Permit ID: Blue 4b-time.B Timestamp: 08:21:28 +946557

Cause: I brought down the blue link for maintenance by putting bo3-qf2 into the OFF state. -Don Bruno

Main Magnet Power Status: Park Currents. **DX Heaters:** None fired.

Technical Notes / Sequence of Events:

18:12 RHIC ps Maintenance Performed today: 1. Swapped out yi10-q89-ps. 2. Swapped 3 channel isolation amplifier boards of bo2-qd1 and bi1-qf1. 3. Swapped 3 channel isolation amplifier boards of bo2-qf8 and bi1-qf9. 4. Connected Dranetz AC power line meter in 1004B. 5. Ran all snakes and rotators up to maximum current. 6. Dx tree heaters wired into ac terminal block. 7. Successfully tested Cu10 ramp. 8. IBS ramp tested but some problems still need to be investigated. 9. Swapped out bi5-qs-ps. -Don Bruno [rhic] [ps]

March 3, 2005: *News from the night before and displayed on the screen this morning, 07:23* AGS is down for repair of a short in the I20 magnet. Today's 08:30 meeting has been cancelled. -JPJ [ags]

Continued Maintenance for Our Group.

C-A Operations Daily Log reported a 24-hour maintenance for the I20 AGS Magnet Report.
CEPS used approximately 8 hours during both days.

08:20 we're ramping the magnets to zero so that the Power Supply Group can replace the housekeeping supply for bo2-qf8. -JPJ

Rings restored and returned to Physics: Let the counters Commence once more!

March 2, Yellow Recovery TAPE Start: 14:33:40 Link Recovered Time: 14:43:26

March 3, Blue Recovery TAPE Start: 11:49:08 Link Recovered Time: 11:59:11

Quench Analysis: Scheduled Maintenance

(Counter = Maintenance)

Weather conditions: Snow, slippery roads, cold.

RHIC Physics fy05 Run
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Tuesday-March 06, 2005: PR-072, Blue Quench: File# = 1110096840

Permit ID: 10a-ps3.A Timestamp: 03:14:00 +169645 Beam Permit Fail Timestamp: 03:14:00 +169646

QPAControl / Timing Resolver: No faults indicated, blue-quench detector first to trip.

Quench Detector(s) Trip: 10a-qd1, B9DRDR_GL, Int. 1, Tq - 21, no auxiliary trips.

DX Heaters: None fired

5 Minute: Quench Delay File: None indicated, all systems in the running mode.

Beam Loss Monitors (Rads/Hr): Low residue levels indicating no beam in the machine.

Main Magnet Power Status: Approaching Top Energy: BDMC = 4194.27 amps, BQMC = 3908.54 amps.
Blue Main Dipole indicates a Current Monitor Alert.

Technical Notes / Sequence of Events: Analysis shows that there was no indication of a power supply at fault prior to this quench event. All Postmortems for sector 9 and 10 show signal responses normal even after T=zero. The blue quench link tripped due to quench detector 10a-qd1 whereas the signal for B9DRDR_GL was the cause. The beam permit tripped 1 u-sec after the quench link. *G Heppner*

Physics / MCR Logs: 03:05, Cryo Control Room reported that a power supply for the lead flow controller in Building 1010 needs to be replaced. We will ramp to zero (through a hysteresis cycle) since the CCR believes that they will be pulling the quench links. -jak

QLI Recovery TAPE Start: 04:44:21 Link Recovered Time: 04:52:03 Estimated Down Time: 98 minutes

Quench Analysis: Gas Cooled Lead pulled Quench Detector

(Counter = Cryogenics Related)

Tuesday-March 06, 2005: PR-073, Blue Quench: File# = 1110109216

Permit ID: 3b-ps1 Timestamp: 06:40:16 +439832 Beam Permit Fail Timestamp: 06:40:16 +439834

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: All systems indicate running.

DX Heaters: None fired

5 Minute: Quench Delay File: None indicated, all systems in the running mode.

Beam Loss Monitors (Rads/Hr): No beam in the machine.

Main Magnet Power Status: Zero Currents.

Technical Notes / Sequence of Events: I did not see any problems within the supplies. Noticing the Time Stamp for when the Quench Event had taken place and comparing it to when TAPE was initiated for recovery, TAPE was started first. Next step is to look at the TAPE Message Logs and sure enough, the Blue Link was already up when someone had initiated a TAPE start. Isn't TAPE supposed to stop if a good condition (Link Up) already exists? *G Heppner*

Physics / MCR Logs:

QLI Recovery TAPE Start: 06:37:49 Link Recovered Time: 06:47:26 Estimated Down Time: 8 minutes

Quench Analysis: TAPE was initiated to Run when the Blue Link was already up.

(Counter = Operation Error)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Tuesday-March 06, 2005: PR-074, Blue Quench: File# = 1110162711

Permit ID: 7b-ps1 Timestamp: 21:31:48 +3923323 Beam Permit Fail Timestamp: 20:09:40 +1757349

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: 7b-qd1, B6DSA4_A3VT, Int. 100, Tq -24

DX Heaters: None fired

5 Minute: Quench Delay File: System Error indicated for the following quench detectors:

2b-qd1, 3b-qd1, 9b-qd1, 10a-qd1, 11b-qd1 and 12a-qd1. All others indicated that they were running.

Beam Loss Monitors (Rads/Hr): No beam in the machine.

Main Magnet Power Status: Steady at: BDMC = 1315.04 amps, BQMC = 1359.24 amps.

A Ramp down initiated, Mains tripping at BDMC = 1286.26 amps, BQMC = 1329.48 amps.

Technical Notes / Sequence of Events: Analysis shows that there was no indication of a power supply at fault prior to this quench event. The blue quench link tripped due to quench detector 7b-qd1 whereas the signal for B6DSA4_A3VT was the cause. The beam permit had already been down, sector 10 Blue Dumps indicated no beam in the machine at the time of this event. The Physics Logs indicate they were using a different type of ramp other than Cu8. George had requested they use a slower slow factor when attempting this (Cu103) ramp. *G Heppner*

Physics / MCR Logs: 20:17, Steve will restart the Ramp Manager and wfg manager for the Cu103 setup. -TJS

20:59, we're ready to go with Cu103. Vadim has adjusted yellow tunes to match changes to blue as a first attempt for ramping both rings. Haixin has given us the go-ahead to run until 01:00, and has called Jie to cancel the 03:00 instability experiment. -TJS 21:24, we'll try a hysteresis ramp of Cu103 to see how things go. -TJS, VL, WF, waldo, ST, VP, JAK, NPL, KLF 22:18, we were ramping with the Cu103 ramp when this blue QLI occurred at the start of the down ramp. George Ganetis recommended that we use a slow factor of 4 for the down ramp (we called him at 2215 after the second blue QLI). -jak 21:49, No clear indication of what tripped in this QLI, all power supplies in 7/8 o'clock look normal. -TJS 21:47, b4-dh0 had to be reset manually by Jenn. -TJS, JAK

QLI Recovery TAPE Start: 21:36:19 Link Recovered Time: 21:50:54 Estimated Down Time: 19 minutes

Quench Analysis: Different Ramp then Cu8 was initiated.

(Counter = Other)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Tuesday-March 06, 2005: PR-075, Blue Quench: File# = 1110165117

Permit ID: 7b-ps1 Timestamp: 22:11:56 +1790077 Beam Permit Fail Timestamp: 22:11:56 +1790078

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: 7b-qd1, B6DSA4_A3VT, Int. 100, Tq -24

DX Heaters: None fired

5 Minute: Quench Delay File: None indicated, all systems in the running mode.

Beam Loss Monitors (Rads/Hr): Blue Beam dumped at 22:11:37.

Main Magnet Power Status: Steady at: BDMC = 1315.04 amps, BQMC = 1359.24 amps.

A Ramp down initiated, Mains tripping at BDMC = 1286.26 amps, BQMC = 1329.48 amps.

Technical Notes / Sequence of Events: This is the second time analysis show that there was no indication of a power supply at fault prior to this quench event. The blue quench link tripped due to quench detector 7b-qd1 whereas the signal for B6DSA4_A3VT was the cause. The beam permit tripped 1 u-sec after to the Blue Link. The Physics Logs indicate they were using a different type of ramp other than Cu8. George had requested they use a slower slow factor when attempting this (Cu103) ramp. *G Heppner*

Physics / MCR Logs:

22:13, accidentally re-bucketed, put in collimators, etc. Tune meter was on during the ramp, but has no useful data. PLL has good data though. We suspect that snapback losses were instability, so we'll be careful about chromaticity when returning to injection. Jenn is calling George to consult. -TJS, JAK [rhic] [ps]

22:17, we were ramping with the Cu103 ramp when this blue QLI occurred at the start of the down ramp. George Ganetis recommended that we use a slow factor of 4 for the down ramp to avoid this for the next ramp.. -jak

22:35, back at injection, have changed sequencer Slowfactor for down ramp to 4 per George for now, will revert this later. Yellow injection looks very good; Wolfram is using tuning knobs to adjust blue injection. -TJS

22:55, down ramp is well behaved with slow factor 4. -TJS

23:02, I changed the de-fault slow factors for the low energy ramps in the wfgman. You can put the slow factors back in the sequencer. -Ganetis [ps]

23:04, Thanks! We'll need this tomorrow anyways, so it's good to have this now. -TJS

QLI Recovery TAPE Start: 22:19:49 Link Recovered Time: 22:27:31 Estimated Down Time: 16 minutes

Quench Analysis: Different Beam Ramps due to Studies.
(Counter = Other)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Monday-March 07, 2005: PR-076, Yellow Quench: File# = 1110215450

Permit ID: 9b-ps1 Timestamp: 12:10:48 +2274170 Beam Permit Fail Timestamp: 12:10:48 +2274172

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: 9b-qd1, Y8QFA3_A2VT, Int. 20, Tq -23

Sector 8, Yellow, Quad Focus Q10, 12, 14, 16, 18 and 20 string.

5 Minute: Quench Delay File: None indicated, all systems in the running mode.

Beam Loss Monitors (Rads/Hr): Sector 8 Base Pulse or 1.5 seconds, g8-lm6 = 587.90, g8-lm8 = 1298.51,
g8-lm9 = 3546.23, g8-lm10 = 4666.51 saturated for over .5 seconds, g8-lm14 = 632.17

Main Magnet Power Status: Ramping from Injection to Store: YDMC = 912.83 amps, YQMC = 866.79 amps

Technical Notes / Sequence of Events:

I did not see any indications that a power supply had caused this quench event. The yellow quench link tripped due to quench detector 9b-qd1 whereas a real magnet quench occurred at Y8QFA3_A2VT. The beam permit tripped 2 u-sec after the quench link. Beam Losses were high in sector 8 at g8-lm10. Plots indicated that there was a real magnet quench in the yo8 arc magnet, sector 8 Quad Focus magnet string Q10 thru Q20. There are now 27 beam induced quenches for this Fy05 run. *G Heppner*

Physics / MCR Logs:

12:13, Wups! We probably (okay, definitely) had too much beam in for this ramp, and yellow losses were large before the BLM thresholds likely kicked in. Previous ramps had total intensity of about 20e9; this one had about 37e9. We'll recover and limit intensity for future ramps, and investigate target orbits in the meantime. -TJS

12:14:32 Quench link interlock in the yellow ring from 9b-ps1. Cryo control has been called and we are awaiting their analysis.

12:36:42 Cryo indicates that we may proceed. We ramp for hysteresis. N. Tsoupas is working with B. Brueggert on ATR emittance measurements.

QLI Recovery TAPE Start: 12:22:19 Link Recovered Time: 12:31:22 Estimated Down Time: 20 minutes

Quench Analysis: Beam Induced Quench #027

(Counter = Beam Induced)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

◆ ***Tuesday-March 08, 2005: PR-077, Blue Quench: File# = 1110307647***

Permit ID: 2b-ps1 Timestamp: 13:47:24 +3419714 Beam Permit Fail Timestamp: 13:47:24 +3371932

NOTE: Due to the power failure, most timestamps did not record, several in the pink. These indicated above are best accurate as to what had been recorded.

QPAControl / Timing Resolver: Alcove 1B: QP02-R01B04-bi1-sxf-qp, QP02-R01B05-bi1-sxd-qp
Alcove 3B: QP02-R03B04-bo3-sxf-qp, QP02-R03B05-bo3-sxd-qp
Alcove 5B: QP02-R05B04-bi5-sxf-qp, QP02-R05B05-bi5-sxd-qp

Quench Detector(s) Trip: All tripped indicating positive Tq Values, only 3b-qd1 and Auxiliary Detectors remained running.

DX Heaters: 2b-ps2.B1, Off, Charge Fault, cfe-2b-ps2 (FIRED).

5 Minute: Quench Delay File: 2b-qd1, B2DRDX_VT

Beam Loss Monitors (Rads/Hr): Beam had been aborted properly at the Blue Dump Station, Sector 10.

Main Magnet Power Status: BDMC = 1315.96 amps, BQMC = 1247.39 amps (Tripping before T=zero)

QLI Recovery TAPE Start: 15:00:43 Link Recovered Time: 15:09:03 Estimated Down Time: 82 minutes

Quench Analysis: Power Dip brought down both Links.

(Counter = Power Dip)

◆ ***Tuesday-March 08, 2005: PR-077, Yellow Quench: File# = 1110307647***

Permit ID: 4b-time.B Timestamp: 13:47:24 +3424152 Beam Permit Fail Timestamp: 13:47:24 +3371932

NOTE: Due to the power failure, most timestamps did not record, several in the pink. These indicated above are best accurate as to what had been recorded.

QPAControl / Timing Resolver: Alcove 1B: QP02-R01B06-yo1-sxf-qp, QP02-R01B07-yo1-sxd-qp
Alcove 3B: QP02-R03B06-yi3-sxf-qp, QP02-R03B07-yi3-sxd-qp
Alcove 5B: QP02-R05B06-yo5-sxf-qp, QP02-R05B07-yo5-sxd-qp

Quench Detector(s) Trip: All tripped indicating positive Tq Values. 5b-qd1 indicated Finished deferred dump,
But shows no data. Auxiliary Detectors remained running.

5 Minute: Quench Delay File: None initiated.

Beam Loss Monitors (Rads/Hr): Beam had been aborted properly at the Yellow Dump Station, Sector 9.

Main Magnet Power Status: YDMC = 1316.39 amps, YQMC = 1249.71amps (Tripping before T=zero)

Technical Notes / Sequence of Events: A Major Power Dip caused multiple systems to go down. The Main Links dropped including the following Tunnel Alcoves: 1A thru 5B and 11C. Alcoves 5C thru 11B remained on. While running TAPE to recover the Sextupoles, bi1-sxd required a second attempt before coming back on. There were no faults indicated as to why this required a second TAPE run. QD plots indicated that there was one Real Magnet quench at b2dhX. *G Heppner*

Physics / MCR Logs: Power dip. Most systems affected, Cryo included. -JLN

QLI Recovery TAPE Start: 15:10:23

Estimated Down Time: N/A minutes

Link Recovered Time: 15:18:01 (I exited because another Power Dip brought the links back down before the Yellow Mains had settled at Park Current).

Quench Analysis: Power Dip brought down both Links.

(Counter = Power Dip)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Tuesday-March 08, 2005: PR-078, Blue Quench: File# = 1110313038

Permit ID: 12a-ps1.A Timestamp: 15:17:16 +2479202 Beam Permit Fail Timestamp: Still Down from Previous.

QPAControl / Timing Resolver: QP07-R12ABQF5-b12-q7-qp first to trip, no faults indicated.

Quench Detector(s) Trip: Detectors remained running.

DX Heaters: None fired.

5 Minute: Quench Delay File: None initiated.

Beam Loss Monitors (Rads/Hr): No Beam in the Machine.

Main Magnet Power Status: At Park Currents when the second power dip occurred.

QLI Recovery TAPE Start: 15:40:29 Link Recovered Time: 15:48:50

Estimated Down Time: 32 minutes

Quench Analysis: Power Dip brought down both Links.

(Counter = Power Dip)

Tuesday-March 08, 2005: PR-078, Yellow Quench: File# = 1110313038

Permit ID: 2b-ps1 Timestamp: 15:17:16 +2942909 Beam Permit Fail Timestamp: Still Down from Previous.

QPAControl / Timing Resolver:

Quench Detector(s) Trip: Detectors remained running.

5 Minute: Quench Delay File: None initiated.

Beam Loss Monitors (Rads/Hr): No Beam in the Machine.

Main Magnet Power Status: YDMC = Park Current, YQMC = approximately 40 amps (almost to Park, Recovering from prior Power Dip, running Tape when a 2nd Power Dip Occurred).

Technical Notes / Sequence of Events: Another Power Dip occurred when I was recovering the Links, causing both to trip once again. This time, the Alcoves had survived. Weather conditions had decreased from earlier in the day from a warm rain that switched over to snow as the temperature dropped and later into ice with heavy wind condition. Recovered and restored all RHIC Power Supplies from the previous power dips. Completed one Hysteresis Cycle and handed back over to MCR. *G Heppner*

Physics / MCR Logs: 2005-Mar-08 23:50:49 Summary: RHIC machine development was off for most of the shift due to power dip recovery, yar90 power supply water mat problems, a Yellow injection kicker bias fault, and a Cryo 3Q6 PLC power supply failure. As of the end of the shift, the power dip at the end of the previous shift was likely caused by the failure of a 15kV switch in substation 6M (C line secondary areas of building 912). T. Nehring reports that a repair of the problem will likely take two days. Substation 5M also tripped at the same time as 6M. A line crew is setting up an alternate feed to the affected portion of 912 now.

QLI Recovery TAPE Start: 15:50:01

Link Recovered Time: 15:58:20

Estimated Down Time: 41 minutes

Quench Analysis: Power Dip brought down both Links.

(Counter = Power Dip)

Total Down Time for the Links for PR-077 and 078 due to Power Dips = 131 minutes

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Thursday-March 10, 2005: PR-079, Blue Quench: File# = 1110514357

Permit ID: 4b-time.A Timestamp: 23:12:36 +1786298 Beam Permit Fail Timestamp: 23:12:36 +1777973
QPAControl / Timing Resolver: No faults indicated on main page, 3b-ps1 = QP02-R03B05-bo3-sxd-qp, Crowbar
Quench Detector(s) Trip: Detectors remained running.
DX Heaters: None fired.
5 Minute: Quench Delay File: None initiated.
Beam Loss Monitors (Rads/Hr): No Beam in the Machine.
Main Magnet Power Status: At Zero Currents

QLI Recovery TAPE Start: 23:14:43 Link Recovered Time: 23:22:44 Estimated Down Time: 10 minutes

Quench Analysis: AC Reset required for cfe-3b-ps1
(Counter = Controls Related)

Thursday-March 10, 2005: PR-079, Yellow Quench: File# = 1110514357

Permit ID: 12a-ps1.A Timestamp: 23:12:36 +1791364 Beam Permit Fail Timestamp: 23:12:36 +1777973
QPAControl / Timing Resolver: No faults indicated on main page.
Quench Detector(s) Trip: Detectors remained running.
5 Minute: Quench Delay File: None initiated.
Beam Loss Monitors (Rads/Hr): No Beam in the Machine.
Main Magnet Power Status: At Zero Currents

Technical Notes / Sequence of Events: Quench Summary Page indicated that the 3b-ps1 was down for both the Blue and Yellow Ring (in the pink). Physics Log reports that they performed an AC reset for cfe-3c-ps1. FitReader on the other hand indicates that cfe-3b-ps1 was AC reset. Both Rings had been brought down to zero currents before this event had taken place. *G Heppner*

Physics / MCR Logs: March 11, 2005 at 00:03 = cfe-3c-ps1 needed an AC reset to clear some issues. -Team B-er

QLI Recovery TAPE Start: 23:22:58 Link Recovered Time: 23:30:54 Estimated Down Time: 18 minutes

Quench Analysis: AC Reset required for cfe-3b-ps1
(Counter = Controls Related)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Sunday-March 13, 2005: PR-080, Yellow Quench: File# = 1110751882

Permit ID: 1b-ps1 Timestamp: 17:11:20 +2706096 Beam Permit Fail Timestamp: 17:11:20 +2706098

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: 1b-qd1, Y12QFA3_A2VT, Int. 20, Tq -23

5 Minute: Quench Delay File: None indicated, all systems in the running mode.

Beam Loss Monitors (Rads/Hr): Sector 12: g12-lm10 = 284.65, g12-lm14 = 135.05, g12-lm16 = 577.27,
g12-lm17 = 491.46, g12-lm18 = 4471.32 and g12-lm20 = 480.03.
There were also high losses observed in sector 1 at g1-lm20, g1-lm18 and g1-lm10.

Main Magnet Power Status: Qdplots shows that the mains had just made it to the top for the low Cu Energy Run.
YDMC = 1316.32 amps and YQMC = 1249.26 amps when the quench event occurred.

Technical Notes / Sequence of Events:

Weekend Update Report: 20:51, Yellow quench link trip was caused by 1b-qd1 quench detector. The quench detector tripped because of a real magnet quench at Y12QFA3_A2VT. The beam permit tripped after the quench link. There was a real magnet quench at y12q18. There was a high beam loss at g1-lm18. I could not tell if there were any p.s. problems before the quench because pscompare did not the correct data. There is now 28 beam induced quench for this run. -Ganetis [quench]

I re-checked Georges Weekend analysis and arrived at the same conclusions. There had been a Beam Induced Magnet Quench in the Sector 12 Yellow Arc Quad Focus region between magnets Q10 and Q20. Also for Tape Recovery Info: (yo9-qf6-ps needed one retry as it read standby during the final on check sequence): G Heppner

Physics / MCR Logs:

2005-Mar-13 17:11:00 A yellow QLI occurred originating from 1b-ps1. The RHIC beam shutters closed when NM233 interlocked. 2005-Mar-13 17:25:00 The NM233 average was below 1 mrem/hour. The RHIC beam shutters were actuated several times as per TPL 05-01.

QLI Recovery TAPE Start: 17:29:47 Link Recovered Time: 17:37:13 Estimated Down Time: 26 minutes

Quench Analysis: Beam Induced Quench #028
(Counter = Beam Induced)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Sunday-March 13, 2005: PR-081, Yellow Quench: File# = 1110761457

Permit ID: 3b-ps1 Timestamp: 19:50:56 +1981805 Beam Permit Fail Timestamp: 19:50:56 +1981806

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: 3b-qd1, Y2DSA5_A4VT, Int. 5, Tq -24

5 Minute: Quench Delay File: 3b-qd1, Y2DSA5_A4VT

Beam Loss Monitors (Rads/Hr): Sector 2: g2-lm7 = 2481.79, g2-lm8 = 1719.35, g2-lm9 = 4513.01 $\frac{3}{4}$ of a second, g2-lm10 = 4513.22, g2-lm11 = 4489.82 for about 1 sec, g2-lm12 = 4348.06 for 0.6 sec and g2-lm13 = 4338.29 for a little over 1 second. There were also high losses observed in Sector 1 at g1-lm21, g1-lm20, g1-lm19, g1-lm18 and g1-lm10.

Main Magnet Power Status: Ramping to last store for low Energy Cu Run when tripping before store.
YDMC = 1064.43 amps and YQMC = 1010.32 amps.

Technical Notes / Sequence of Events:

Weekend Update Report: 20:50, Yellow quench link trip was caused by 3b-qd1 quench detector. The quench detector tripped because of a real magnet quench at Y2DSA5_A4VT. The beam permit tripped after the quench link. There were real magnet quenches in sector 2 between D11 and D14. There was a high beam losses at g2-lm11, g2-lm12, and g2-lm13. I could not tell if there were any p.s. problems before the quench because pscompare did not have the correct data. There is now 29 beam induced quench for this run. -Ganetis [quench]

I re-checked Georges weekend analysis and arrived at the same conclusions. There had been a Beam Induced Magnet Quench in the Sector 2 Yellow Arc Dipole Supply region between magnets D9 and D14. *G. Heppner*

Physics / MCR Logs:

2005-Mar-13 19:50:00 RHIC was filled and while we were ramping, Yellow QLI occurred. George Ganetis was called at home and he is investigating from home.

2005-Mar-13 20:25:00 George tells us that the QLI was beam induced. Fulvia Pilat asked us to revert the ramp to a settings from this morning.

2005-Mar-13 20:30:00 Brian Briscoe made some adjustments to stabilize Linac Rf Mod-9 and replaced modulator telemeter receiver chassis for Mod-2.

QLI Recovery TAPE Start: 20:27:28 Link Recovered Time: 20:34:50 Estimated Down Time: 44 minutes

Quench Analysis: Beam Induced Quench #029
(Counter = Beam Induced)

RHIC Physics fy05 Run

Daily Quench Analysis for the month of March 2005

Monday-March 14, 2005: PR-082, Blue Quench: File# = 1110844234

Permit ID: 10a-ps3.A Timestamp: 18:50:32 +2247887 Beam Permit Fail Timestamp: 18:50:32 +2247887

QPAControl / Timing Resolver: No faults indicated, b-QD QLI first to trip.

Quench Detector(s) Trip: 10a-qd1, B9DRDX_VT, Int. 5, Tq -23

5 Minute: Quench Delay File: None indicated, all systems show running mode.

DX Heaters: None fired.

Beam Loss Monitors (Rads/Hr Sector 9 and Sector 10 show beam residue. XFMR: Zero Beam.

Main Magnet Power Status: At Injection Current, BDMC = 473.27 amps, BQMC = 446.05 amps.

Technical Notes / Sequence of Events: The blue quench link tripped due to quench detector 10a-qd1 whereas the signal B9DRDX_VT pulled the link. Looking at both bi9-dh0 and bi9-dhX as Postmortems indicated both supplies moved before T=zero, note that these two supplies are nested. With power supply bi9-dhX being the inside of the current loop of the two, closer observation indicated that power supply bi9-dh0 had a problem first. Using Qdplots and by normalizing the two signals for these supplies using their Raw Current Signals, bi9-dh0-ps had in fact moved first. I used this method since the two Voltage taps at the magnets appeared to move at the exact time. I felt Postmortem where too close to call as it all depends on how and where you enlarge the plot and placement of the cursor. *G Heppner*

March 16, 2005: further review from George, he believes that the call is close. I changed the entry in the power supply summary Log to read as the following: The blue quench link tripped due to quench detector 10a-qd1 whereas the signal B9DRDX_VT pulled the link. Looking at both bi9-dh0 and bi9-dhX, Postmortems indicated both supplies moved before T=zero, note that these two supplies are nested. With power supply bi9-dhX being the inside of the current loop of the two, closer observation indicated that power supply bi9-dh0 may have been the cause. However, too close to call, the Quench Detector picked up the sharp signal change from the bi9-dhX first so this supply may well be the problem. *G Heppner*

Data below was taken from Postmortems indicating the greater excursion between the two:

| <u>Supply:</u> | <u>Error:</u> | <u>Voltage:</u> |
|----------------|---------------|-----------------|
| Bi9-dh0-ps: | 216.079mv | 465.089mv |
| Bi9-dhX-ps: | 194.720mv | 419.919mv |

Physics / MCR Logs: 23:35 **Summary:** Physics ran for 4.35 hours during this shift in RHIC. Physics operations were hampered by repeated trips of the PHOBOS magnet, resulting in early termination of the physics stores in RHIC. In the first case, the PHOBOS trip appeared to be caused by a loose door, causing an interlock of the magnet power supply. After recovery and the establishment of a second store, the second trip of the PHOBOS magnet appears to have been caused by a failed SCR fuse. In both case, CAS was able to repair the problem and the PHOBOS magnet was successfully tested and restored to operation. Furthermore, during recovery from the first PHOBOS trip, a quench link interlock occurred in the blue ring at injection. This was quickly recovered.

QLI Recovery TAPE Start: 18:55:25 (stopped at 18:57:45, wfgman RHIC ramping to park stage).

MCR: 2005-Mar-14 19:13:04 The TAPE application crashes while executing. We attempt to run the application again.

QLI Recovery TAPE Start: 19:06:45 Link Recovered Time: 19:16:27 Estimated Down Time: 26 minutes

Quench Analysis: Power Supply Glitch bi9-dhX-ps or possibly bi9-dh0-ps.
(Counter = IR Power Supply)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Tuesday-March 15, 2005: PR-083, Blue Quench: File# = 1110931516

Permit ID: 5b-ps1 Timestamp: 19:05:16 +98196 Beam Permit Fail Timestamp: 19:05:16 +98198

QPAControl / Timing Resolver: 5b-ps1:

- 1) QP02-R05B04-bi5-sxf-qp, Crowbar, cfe-5b-ps2
- 2) QP02-R05B05-bi5-sxd-qp, Crowbar, cfe-5b-ps2

Quench Detector(s) Trip: 5b-qd1 indicates a (No FEC/DSP), all others tripped indicating Positive Tq Values.

5 Minute: Quench Delay File: (qdprocess.5b-qd1, No FEC/DSP HS, cfe-5b-qd1)

DX Heaters: None fired.

Beam Loss Monitors (Rads/Hr): Sector 4 and 5 show minimal losses near the B Alcove where the quench detector is located but indicate a concentrated steady amount for the time spent there for more then the 10 second wind of data store.

g4-lm19 = 144.74 , g4-lm20 = 65.70, and g5-lm21 = 127.50

Main Magnet Power Status: Ramping from Injection to Store. BDMC = 822.39 amps, BQMC = 779.99 amps

QLI Recovery TAPE Start:

Tape Start: 19:23:11: User invoked cancel, step 61 of wfg.b-dmain-ps readback = -0.425781

Tape Start: 19:45:58: User invoked cancel, step 61 of wfg.b-dmain-ps readback = -0.427734

Tape Start: 20:04:27: User invoked cancel, step 14 of wfg.b-dmain-ps readback = -0.424805

QLI Recovery TAPE Start: 20:05:51 Link Recovered Time: 20:13:24 Estimated Down Time: 68 minutes

Quench Analysis: Quench Detector 5b-qd1 Fail due to concentrated radiation.

(Counter = Other)

Tuesday-March 15, 2005: PR-083, Yellow Quench: File# = 1110931516

Permit ID: 5b-ps1 Timestamp: 19:05:16 +98196 Beam Permit Fail Timestamp: 19:05:16 +98198

QPAControl / Timing Resolver: 5b-ps2 QPA Control:

- 1) QP02-R05B06-yo5-sxf-qp, Crowbar, cfe-5b-ps2
- 2) QP02-R05B07-yo5-sxd-qp, Crowbar, cfe-5b-ps2

Quench Detector(s) Trip: 5b-qd1 indicates a (No FEC/DSP), all others tripped indicating Positive Tq Values.

5 Minute: Quench Delay File: (qdprocess.5b-qd1, No FEC/DSP HS, cfe-5b-qd1)

Beam Loss Monitors (Rads/Hr): See Data for Blue Quench Event above.

Main Magnet Power Status: Ramping from Injection to Store. YDMC = 822.60 amps, YQMC = 780.95 amps.

Technical Notes / Sequence of Events: There where no problems found with the power supplies. Beam Losses at a minimal Low but concentrated for over 10 seconds the 5b-qd1-quench detector was affected by radiation. George had been notified at home and was able to fix the problem over the net. The 4 Sextupole magnets had to be re-trained since the Quench Detector was reset and I also noticed that the TAPE program had difficulties restoring the Blue Main Dipole, which might be a software problem. *G Heppner*

21:31 Blue and yellow quench link trips was caused by 5b-qd1. The quench detector's DSP was hung. I had to reset the DSP to get the quench detector working. At the time the DSP failed there was beam loss at g4-lm19, g4-lm20, and g5-lm21. I believe the DSP problem was caused by radiation. -Ganetis [quench]

Physics / MCR Logs: 19:11:23 encounter a quench link interlock in both the blue and yellow rings while ramping. The interlock originates in 5b-ps1. After checking with Cryo, they indicate that they have seen no temperature rises but they are also having communications difficulties and ask us to stop and restart the Cryowrite server. Also, the 5b-ps1 quench detector shows a No FEC/DSP indication. Wait for Cryo clearance before proceeding. 19:23:00 Cryo indicates that their systems are stable and they have encountered no temperature rises. Communication is restored and Cryo gives MCR permission to resume beam operations. 19:36:40 after running the recovery, MCR still sees a No FEC/DSP indication for the 5b-qd1 quench detector and calls George Ganetis for advice. 19:57:44 George Ganetis calls to indicate that he had succeeded in restoring the 5b-qd1 front-end to operation allowing recovery to proceed.

QLI Recovery TAPE Start: 20:14:49 Link Recovered Time: 20:22:34 Estimated Down Time: 78 minutes

Quench Analysis: Quench Detector 5b-qd1 Fail due to concentrated radiation.

(Counter = Other)

RHIC Physics fy05 Run

Daily Quench Analysis for the month of March 2005

RHIC Update

The high energy RHIC copper run ended as planned on March 6. In almost 8 weeks of physics running the machine delivered 15 nbarn-1 of integrated luminosity to Phenix and STAR, at the low beta* interaction regions, and about 6 nbarn-1 to Brahms and Phobos. That is more than twice the stated goal for the run of 7 nbarn-1 to the high luminosity experiments. Phenix and Phobos fully met their physics goal for the high-energy run, and Star and Brahms came close, making this an overall productive run for machine and experiments alike. From March 7 on, the focus has shifted to Cu collisions at low energy (31.2 GeV/u as compared to 100 GeV/u at high energy). After ~ 6 shifts of machine development to commission the low energy ramp, physics started and it is planned to continue until the March 23. A day of collisions at injection energy is also planned before we turn over to polarized proton operations. high energy RHIC copper run ended as planned on March 6.

Fulvia Pilat

Saturday-March 19, 2005: PR-084, Yellow Quench: File# = 1111257816

Permit ID: 10a-ps3.A Timestamp: 13:43:36 +701177 Beam Permit Fail Timestamp: 13:43:36 +701177

QPAControl / Timing Resolver: No faults indicated, Yellow Quench Detector tripped the link.

Quench Detector(s) Trip: 10a-qd2, **System Error** (Y10QFQ1_VT, Int. 1, Tq -25)

All others tripped indicating positive values, no auxiliary trips.

5 Minute: Quench Delay File: No indications, all systems running.

Beam Loss Monitors (Rads/Hr): Appeared to be a normal abort in Sector 9, Yellow and Sector 10, Blue

Main Magnet Power Status: Steady at Store Energy of YDMC = 1316.39 amps, YQMC = 1249.36 amps

Technical Notes / Sequence of Events: There appeared to be no problems found with the power supplies by initially looking at the Postmortem Plots. All signals appear to be normal before T=zero. However, Sudden Current Spikes are seen on only two of the nested quad power supplies (running steady currents: yi10-qf1-ps (RAW) = +28.29943 amps and yi10-qd2-ps (RAW) = +16.39986 amps.) as seen using Qdplots. They both appear to be in synchronization with the first spike starting at T= -0.44994 seconds. Yi10-qf1-ps (RAW) peak spike of +1.07997 amps, yi10-qd2-ps (RAW) peak spike of +1.18009 amps. A second and even larger spike occurs at T -0.13333 seconds, yi10-qf1-ps (RAW) peak spike of +5.32728 amps and yi10-qd2-ps (RAW) peak spike of +6.11851 amps. There is a System Error indication for this quench detector which I don't quite understand and George Ganetis will have to identify that cause but without other conclusive evidence, it appears that these two supplies caused the 10a-qd2 quench detector tripped the link due to large current spikes. *G Heppner*

Originally earmarked for IR Supply Fault, this PR-084 Event will be changed to a Quench Detector Fault on the Counters. Further evidence concludes that this was the beginning of the 10a-qd2 Quench Detector Bucket problems that persisted later in April, PR-098, 099, 100, 106 and 113. *G Heppner, April 19, 2005*

Physics / MCR Logs:

QLI Recovery TAPE Start: 14:03:25 Link Recovered Time: 14:10:54 Estimated Down Time: 27 minutes

Quench Analysis: Sudden Current Spikes on Power Supplies yi10-qf1 and yi10-qd2.
(Counter = Quench Detector Fault)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Monday-March 21, 2005: PR-085, Blue Quench: File# = 1111420897

Permit ID: 3b-ps1 (In the Pink) Timestamp: 11:01:36 Beam Permit Fail Timestamp: 11:01:36

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: No indications, all systems running.

DX Heaters: None fired.

5 Minute: Quench Delay File: No indications, all systems running.

Beam Loss Monitors (Rads/Hr): No Beam in the Machine

Main Magnet Power Status: Zero Currents

QLI Recovery TAPE Start: 11:03:19 Link Recovered Time: 11:10:56 Estimated Down Time: 9 minutes

Quench Analysis: 3b-ps1 Failed, AC Reset brought down both links.

(Counter = Controls Related)

Monday-March 21, 2005: PR-085, Yellow Quench: File# = 1111420897

Permit ID: 3b-ps1 (In the Pink) Timestamp: 11:01:36 Beam Permit Fail Timestamp: 11:01:36

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: No indications, all systems running.

5 Minute: Quench Delay File: No indications, all systems running.

Beam Loss Monitors (Rads/Hr): No Beam in the Machine

Main Magnet Power Status: Zero Currents

Quench Switches 1010: Y9DQPSW, indicated a UPS Fault, No Quench Link, Open Contactor, Remote On | cfe-10a-ps3

Technical Notes / Sequence of Events: FitReader for this event indicated that a normal reset did not restore the failed cfe-3b-ps1 so an AC Reset was required and this brought down Both Links. *G Heppner*

Physics / MCR Logs: 10:48 cfe-3b-ps1 has no heartbeat; Brian is rebooting. -TJS, BvK

10:56 FEC does not reset/reboot. We are ramping to zero so Brian can try an AC reset, which will pull the quench and permit links. -TJS, BvK, WF, VHS

11:12 cfe-3b-ps1 required an ac reset. We ramped to zero, the reset pulled the quench links and we're recovering with tape. -vhs

QLI Recovery TAPE Start: 11:11:13 Link Recovered Time: 11:18:47 Estimated Down Time: 17 minutes

Quench Analysis: 3b-ps1 Failed, AC Reset brought down both links.

(Counter = Controls Related)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Monday-March 21, 2005: PR-086, Blue Quench: File# = 1111422319

Permit ID: 4b-time.A Timestamp: 11:25:16 +3723812 Beam Permit Fail Timestamp: 11:25:16 +3723814

QPAControl / Timing Resolver: QP03-R4BBQF2-bo3-qf2-qp, first to trip, no faults indicated.

Quench Detector(s) Trip: All tripped indicating Positive Tq Values.

DX Heaters: None fired

5 Minute: Quench Delay File: No indications, all systems running.

Beam Loss Monitors (Rads/Hr): No Beam in the Machine, Low residue seen on the Loss Monitor Plots.

Main Magnet Power Status: Ramping from Injection to Low Energy Top Copper Store.

Tripping at: BDMC = 634.05 amps, BQMC = 657.72 amps

Technical Notes / Sequence of Events: Postmortems and Snapshot indicated for bo3-qf2-ps that the Current stopped climbing while Iref continued. (See more details below in PR-087) *G Heppner*

Physics / MCR Logs: During hysteresis ramp, just up from injection field. We'll recover and try again. -TJS, WF, ST, VHS, BvK

QLI Recovery TAPE Start: 11:34:31 Link Recovered Time: 11:41:55 Estimated Down Time: 17 minutes

Quench Analysis: bo3-qf2-ps Failed to complete Ramp.

(Counter = IR Supplies)

Monday-March 21, 2005: PR-087, Blue Quench: File# = 1111423742

Permit ID: 4b-time.A Timestamp: 11:49:00 +2222762 Beam Permit Fail Timestamp: 11:49:00 +2222763

QPAControl / Timing Resolver: QP03-R4BBQF2-bo3-qf2-qp, first to trip, no faults indicated.

Quench Detector(s) Trip: All tripped indicating Positive Tq Values.

DX Heaters: None fired

5 Minute: Quench Delay File: No indications, all systems running.

Beam Loss Monitors (Rads/Hr): No Beam in the Machine, Low residue seen on the Loss Monitor Plots.

Main Magnet Power Status: Ramping from Injection to Low Energy Top Copper Store.

Tripping at: BDMC = 634.32 amps, BQMC = 657.81 amps

Technical Notes / Sequence of Events:

Power Supply s/n 013 tripped twice while ramping from Injection to Store. Unit tripped on Error, Current would stop at 20.6 amps while Iref continued up the ramp. Difference between the two caused a high error past the threshold for the maximum time out, pulling the Blue Link.

- 1) Replaced Voltage Regulator and Current Regulator Cards, Supply ran fine up.
- 2) Put original Current Reg card back in, Supply still ran fine.
- 3) Put original Voltage Reg card back in, Supply still ran fine.
- 4) Unable to re-create the original fault, 150 amps Suncraft was replaced with s/n 006

Time of call 12:05 / Time Finished and handed back to MCR 13:40 (Total Repair Time = 95 minutes.) *G Heppner*

Physics / MCR Logs:

13:45 bo3-qf2 has been swapped out. We spent some time troubleshooting because we thought a current regulator card or voltage regulator card may have been the problem but they were not so Joe and Gregg swapped out the p.s. -Don Bruno
[blue] [ps]

QLI Recovery TAPE Start: 13:43:11 Link Recovered Time: 13:50:35 Estimated Down Time: 122 minutes

Quench Analysis: bo3-qf2-ps Failed to complete Ramp.

(Counter = IR Supplies)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Tuesday-March 22, 2005: PR-088, Blue Quench: File# = 111516890

Permit ID: 3b-ps1 (In the Pink) Timestamp: 4b-time.A, 13:41:28 +2856201 Beam Permit Fail Timestamp: N/A

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: No indications, all systems running.

DX Heaters: None fired.

5 Minute: Quench Delay File: No indications, all systems running.

Beam Loss Monitors (Rads/Hr): No Beam in the Machine

Main Magnet Power Status: Zero Currents

QLI Recovery TAPE Start: 13:45:16 Link Recovered Time: 13:52:46 Estimated Down Time: 12 minutes

Quench Analysis: 3b-ps1 Failed, AC Reset brought down both links.

(Counter = Controls Related)

Tuesday-March 22, 2005: PR-088, Yellow Quench: File# = 111516890

Permit ID: 3b-ps1 (In the Pink) Timestamp: 4b-time.A, 13:41:28 +2861326 Beam Permit Fail Timestamp: N/A

QPAControl / Timing Resolver: QP02-R03B05-bo3-sxd-qp, Crowbar, cfe-3b-ps2

Quench Detector(s) Trip: No indications, all systems running.

5 Minute: Quench Delay File: No indications, all systems running.

Beam Loss Monitors (Rads/Hr): No Beam in the Machine

Main Magnet Power Status: Zero Currents

Technical Notes / Sequence of Events: FitReader for this event indicated that a normal reset did not restore the failed cfe-3b-ps1 so an AC Reset was required and this brought down Both Links. *G Heppner*

Physics / MCR Logs: cfe-3b-ps1 has been given an AC reset. Running quench recovery since the AC reset pulled the quench permit associated with the FEC.

QLI Recovery TAPE Start: 13:53:00 Link Recovered Time: 14:00:26 Estimated Down Time: 19 minutes

Quench Analysis: 3b-ps1 Failed, AC Reset brought down both links.

(Counter = Controls Related)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Scheduled Maintenance 08:00 to 16:00

Thursday-March 24, 2005: PR-089, Blue and Yellow Quench Files:

File# = 1111677547 Permit ID: Blue 4b-time.A Timestamp: 10:19:04 +3713235

Main Magnet Power Status: Park Currents. **DX Heaters:** None fired.

File# = 1111677601 Permit ID: Yellow: 4b-time.A Timestamp: 10:20:00 +1356360

Technical Notes / Sequence of Events: End of the Cu-Cu Fy05 Run, Switching over to pp^

RHIC ps Maintenance Performed today: 1. Alcove 9a Timing Resolver replaced. 2. Replaced 4 broken magnet tree fans. 3. Self-check completed on all quench detection UPS's. 4. Network card for 7c quench detector UPS replaced. 5. AC power line meter connected to 208Vac in 1004B ps rack. 6. All snakes and rotators were run up to operating current. 7. All snakes and rotators are in the STANDBY state with no faults. 8. All snakes and rotators alarms are now enabled and go to the alarm screen. 9. Voltage regulator cards swapped between: (bo2-qf8 & bi1-qf9), (bi1-qf1 & bo2-qd1), (bi12-qf9 & bo11-qf8), (yi11-qf1 & yo12-qd1). 10. Installed jumper on 3u chassis backplane J24 of b12-dhx, b12-dh0, b2-dhx and b2-dh0. 11. All Gamma-T's were put into the OFF state. 12. A Hysteresis ramp was done with the pp21 ramp. -Don Bruno [rhic] [ps]

Rings restored and returned to Physics: Let the counters Commence once more!

Blue Recovery TAPE Start: 15:02:30 Link Recovered Time: 15:11:52

Yellow Recovery TAPE Start: 15:12:47 Link Recovered Time: 15:21:20

Quench Analysis: Scheduled Maintenance

(Counter = Maintenance) Weather conditions: Snow, Rain, slippery roads, cold.

March 25, 2005 Start of the RHIC Polarized Proton Run!

Sunday-March 27, 2005: PR-090, Blue Quench: File# = 1111947485

Permit ID: 8b-ps1 Timestamp: 13:18:04 +1815959 Beam Permit Fail Timestamp: 13:18:04 +1815961

QPAControl / Timing Resolver: No faults indicated, Blue Quench Detector pulled the link.

Quench Detector(s) Trip: 8b-qd1, B7QFQ2_VT, Int. 5, Tq -24, no Auxiliary Trips.

5 Minute: Quench Delay File: 8b-qd1, B7QFQ2_VT

DX Heaters: No indications of firing.

Beam Loss Monitors (Rads/Hr): Sector 7 peak values: b7-lm3.1 = 4665.70, g7-lm1 = 7616.20, b7-lm2.1 = 29862.17, y7-lm2.1 = 17770.78 and b7-lm0 = 1887.28

Main Magnet Power Status: Ramping to Store Energy for pp, almost there when trip occurred:

BDMC = 1946.34 amps, BQMC = 1877.12 amps (Overshoot?) then down to 1874.79 amps

Technical Notes / Sequence of Events:

The 8b-qd1-quench detector caused the blue quench link to trip. The quench detector tripped because of a real magnet quench at B7QFQ2_VT. The beam permit tripped after the quench link. There was one real magnet quench in the Sector 7 Triplet at the b7q2 magnet. High beam losses were seen at b7-lm3.1, b7-lm2.1 and g7-lm1. There was no indication of a power supply fault. There are now 30 beam induced quench for the Fy05 Run. *G. Heppner*

Physics / MCR Logs: 12:56 very hard to tune the ramp without vertical tune data - in both rings. Rob and Angelika not reachable - so we will guess the right direction of tune changes from shadow signal on plotfill. -Fulvia Mei 13:09 did 'blind' tune modifications in the vertical tune - we'll try the next ramp -Fulvia Mei, 13:20, Raising the bunch intensity was not a good move - as the run coordinator acknowledges....:-). We will try and recover from that. -Fulvia Mei. 13:22 Oops, I confess my sin. Too optimistic, I turned off the ac dipole in the AGS and double the bunch intensity, which caused the blue quench. However, the good part is this is not snake! -Mei

QLI Recovery TAPE Start: 13:33:40 Link Recovered Time: 13:41:30 Estimated Down Time: 24 minutes

Quench Analysis: Beam Induced Quench #030

(Counter = Beam Induced)

RHIC Physics fy05 Run

Daily Quench Analysis for the month of March 2005

Wednesday-March 30, 2005: PR-091, Blue Quench: File# = 1112159331

Permit ID: 1b-ps1 Timestamp: 00:08:48 +3851298 Beam Permit Fail Timestamp: 00:08:48 +3851299

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: 1b-qd1, B1DSA3_A2VT, Int. 20, Tq -24

5 Minute: Quench Delay File: All systems running, no indications.

DX Heaters: No indications of firing.

Beam Loss Monitors (Rads/Hr): Beam had no affect on this event.

The dump stations in Sectors 9 and 10 show low in spots, most like residue from previous abort.

Main Magnet Power Status: Ramping from Park to Injection but appeared to overshoot?

BDMC = 481.84 amps, BQMC = 466.74 amps.

(Ramp appears to be 27 to 29 amps per second near the trip.)

Technical Notes / Sequence of Events:

The 1b-qd1-quench detector caused the blue quench link to trip. The quench detector tripped because of a sudden increase in current due to a wrong ramp command used. The beam permit tripped 1 microsecond after the quench link. There was no real magnet quenches nor was there any indication of a power supply fault. *G. Heppner*

Physics / MCR Logs: 00:15: This probably happened because I activated rot3 when being at injection. Why the machine then went from park to store again is not clear. -Wolfram. 00:19: I think we ramped back up because the rot3 ramp was still active. I activated the pp21 ramp and tried to ramp down to park to recover the blue link - then the yellow linked dropped. Wfgman indicated an error loading the ramp. -PH

QLI Recovery TAPE Start: 00:22:16 Link Recovered Time: 00:30:07 Estimated Down Time: 23 minutes

Quench Analysis: Blue Mains Ramped from Park to Store, Wrong Ramp Command
(Counter = Operator Error)

Wednesday-March 30, 2005: PR-092, Yellow Quench: File# = 1112159567

Permit ID: 7b-ps1 Timestamp: 00:12:44 +3317259 Beam Permit Fail Timestamp: 00:08:48 +3851299

QPAControl / Timing Resolver: N/A

Quench Detector(s) Trip: 5b-qd1, Y4DSA4_A3VT, Int. 100, Tq -12

7b-qd1, Y6DSA4_A3VT, Int. 100, Tq -24

5 Minute: Quench Delay File: All systems running, no indications.

Beam Loss Monitors (Rads/Hr): Beam had no affect on this event.

The dump stations in Sectors 9 and 10 show low in spots, most like residue from previous abort.

Main Magnet Power Status: Steady at Store then, -4.5 seconds before T=zero, begin to Ramp down and trip at:

YDMC = 1922.52 amps, YQMC = 1856.87 amps.

Technical Notes / Sequence of Events:

The 7b-qd1-quench detector caused the blue quench link to trip. The quench detector tripped because of a sudden increase in current due to a wrong ramp command used. The beam permit was already down from PR-091. There was no real magnet quenches nor was there any indication of a power supply fault. *G. Heppner*

Physics / MCR Logs: 00:19: I think we ramped back up because the rot3 ramp was still active. I activated the pp21 ramp and tried to ramp down to park to recover the blue link - then the yellow linked dropped. Wfgman indicated an error loading the ramp. -PH

QLI Recovery TAPE Start: 00:30:18 Link Recovered Time: 00:37:55 Estimated Down Time: 26 minutes

Quench Analysis: Yellow Mains Ramped from Store to Park, Wrong Ramp Command
(Counter = Operator Error)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of March 2005

Scheduled 2-Day Maintenance to Install AGS Cold Snake Magnet!

Wednesday-March 30, 2005: PR-093, Blue and Yellow Quench Files:

| | | |
|--------------------|------------------------------|------------------------------|
| File# = 1112191348 | Permit ID: Blue 4b-time.A | Timestamp: 09:02:28 +746013 |
| File# = 1112191393 | Permit ID: Yellow: 4b-time.A | Timestamp: 09:03:12 +1376555 |

Technical Notes / Sequence of Events: Historic Event! The First ever Cryogenics Magnet installed into the AGS Ring. All connections made at the magnet in 2 days and initial testing completed and passed! *G. Heppner*

RHIC ps Maintenance Performed today: 1) Replaced 2 broken triplet magnet tree fans. 2) Checked alcoves 3c, 9c, 5c, 7a, 7c, and 9a for water. 3) Replaced Quench Detector UPS batteries in 9A, 11B, 2B, 10A and 12A. 4) Changed filters on the Main p.s.'s. 5) Did a high current Cu8 ramp to check 208Vac line voltage in 1004B. 6) Re-trained sextupoles in 11B. 7) Tested new TAPE procedure to train sextupoles. A little more testing needed. 8) Changed jumper settings of J24 on 3u chassis back plane of b12-dhx, b12-dh0, b2-dhx and b2-dh0. 9) Swapped Voltage regulator cards of bo10-qf8 and bi9-qf9. 10) All snakes and rotators left in the STBY state with no faults. 11) Still working on AGS cold snake p.s. wiring, quench detector wiring and magnet wiring. 12) Performed 2 hysteresis ramps with the pp21 ramp. You may want to do one more. - Don Bruno [rhic] [ps]

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|---|-------------------------------|
| March 31 Blue Recovery TAPE Start: 10:49:34 | Link Recovered Time: 11:00:10 |
| March 31 Yellow Recovery TAPE Start: 11:00:38 | Link Recovered Time: 11:10:25 |

Quench Analysis: Scheduled Maintenance

(Counter = Maintenance) Weather conditions: Sunny and warm.

History in the Making:

The First Cryogenic Magnet installed into the all Water Cooled AGS Magnet Ring!

In Just 2 days:

AGS Cold Snake has been installed in the AGS Ring.

All Internal Tunnel Connections completed.

The Initial Electrical Testing from the A-18 House to the Magnet has been completed.

Awaiting Cool Down and Final Electrical connections to be made in the A-18 House.